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[title page]

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PHONEMIC RHYTHM IN COMANCHE

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0. Introduction
1. Rhythm
2. Lexically placed stress
3. Interpretation of vowel length
4. Conditioning of intonation
5. Gradient differences

0. At least two points of theoretic interest are revealed by an analysis of Comanche prosodic features.[2] The first of these is that there are rhythm patterns which are arbitrary and contrastive, and which to a degree at least carry emotional affect. They may also possibly be associated somewhat with grammatical sentence types.

The second point of interest is that Comanche shows no structured system indicating affective situations by contrastive intonational pitch contours such as occur in English and many other languages. Affective situations are indicated to a small degree by

[1] The research for and preparation of this paper was accomplished while the author was a guest instructor in linguistics at the Summer Institute of Linguistics at the University of Oklahoma in 1949. Credit is due to the Institute and to The Christian and Missionary Alliance for making this project possible. Data were collected on a tape recorder, with Mrs. Emily Riddles, of Walters, Oklahoma, as the main informant. Materials were checked, and conversation recorded with the help of several other informants. Special thanks are due to Kenneth L. Pike for suggestions and criticisms, and to Elliott Canonge for checking some of the analysis of intonation presented here. Parts of this paper were presented with recorded examples at the summer meeting of the Linguistic Society of America at Ann Arbor, Michigan, in July, 1949.

[2] Prosodic features are here defined as quantitatively significant phenomena. In Comanche these include phonemic stress, rhythm, and length, and non-phonemic pitch. This definition follows Kenneth L. Pike on 'suprasegmental phonemes' in Phonemics: A Technique for Reducing Languages to Writing, Ann Arbor, 1947, p. 63a.

121 194 emphatic stress and attentative rhythm[1] (and by particles), but pitch contour is conditioned by other factors.

121 A minimum of intonational contrast has previously been reported for Oto,[4] another Indian language of Oklahoma, but languages with little or no contrastive pitch system have not generally been described. In Oto intonational contrast occurs only on ex- [194] clamations. Comanche however has not even that minimum of pitch contrast.

In discussing the nature of intonation, Bolinger has declared that it is 'both conventional and instinctive', that the physiological tension which is the basis of intonation can be 'trained out' (which, he feels, accounts for lexical pitch systems), and that English intonation is not an arbitrary structure because we do not 'occasionally deliberate about our choice of contours'.[5]

On the other hand, without denying the physiological basis of any part of speech or denying the close physiological association of GRADIENT differences of pitch, or of intensity of stress, this paper would lend weight to an understanding of the 'arbitrariness' of into- 121 national SYSTEMS where they occur. Lan- 194 guages range from the complicated and contrastive system structure of English intonation to the lack of any such contrastive structure in Comanche.

The data presented here will show that in Comanche length, stress, and rhythm are interconnected in their distribution and mutual conditioning, patterning together in the total phonological structure,[6] and that

[1] A distinctive rhythm pattern with meaning 'attention here' (see 2).

[113] [4] Kenneth L. Pike, The Intonation of American English, Ann Arbor, 1947, p. 21.

[113] [5] Dwight E. Bolinger, Comments on Pike's American English Intonation, SIL 5.69–70 (1947).

[113] [6] For a tentative list of other Comanche Pho-

194 [121] an adequate description of the phonology must include phonemic rhythm. The prosodic features operate on two levels, the lexical level and the level of the larger phonological and rhythm group. Examples of the interdependence of these features may be seen in that non-phonemic pitch is conditioned by lexical stress and vowel length. Emphatic stress furthermore potentially coincides in point of occurrence with lexical stress. Rhythm is also generally associated with lexical stress in its placement, and phonetically long vowels may be contrasted with phonetically short vowels only within the limits of rhythm. The details of the system follow.

194 1. Comanche utterances are characterized by a marked rhythm which consists of a sequence of secondary rhythm stresses with approximately the same timing between stresses. A rhythm unit is defined as the sequence of syllables grouped together by [104] such stresses or pause. The boundaries of rhythm units are marked with a subscript tic /ı/. ˌ¹tenahˌpi?ˌca? ˌ¹pisiaˌnakIˌkatI ˌ¹pu?-etu ˌ¹mi?aarI *The man with the big ears is walking in the road.* ˌ¹nameˌwahˌsïkʷIˌtïï ˌ¹pisiaˌkahniˌnïï *eight big houses.*

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[113] [104] nemes see Henry Osborn and William A. Smalley, Formulae for Comanche Stem and Word Formation, IJAL 15.93 (1949) fn. 2. The transcription used in this paper will follow that of Formulae except for the addition of /ˌ/ anticipation pause, /./ non-anticipation pause, /ʰ/ emphatic stress, /ı/ rhythm marker, and /ıı/ attentative rhythm, all defined in this paper. Hyphen (-) will not be used here because its only significance in Formulae is for certain morphological boundaries.

[113] For other views on Comanche segmental phonemes see Venda Riggs, Alternate Phonemic Analyses of Comanche, IJAL 15.229-231 (1949). The present analysis parallels generally her Analysis A in treatment of consonants, but differs from it in finding /n/ in 'utterance final' position (see text sentences 5, 8, 17, 18, 21 of this paper) in addition to her /?/ and /h/ (p. 229), and in interpreting [ï], when non-syllabic, as non-phonemic aspiration of a preceding consonant. This interpretation results in a larger number of consonant clusters as inspection of the data will show.

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194 Rhythm units in sequence tend to have perceptually the same timing, with some fluctuation and variation. So important is this timing that rhythm units of one, two, or even three syllables are sometimes perceptually alike in duration. In the following example the rhythm unit ˌʔa (because of the accompanying pause) is perceptually of the same length as such sequences as ˌˈparɪʙo. ˌˈʔɪknɪ̆ʔ ˌˈkahnɪkɪ̆ ˌˈʔɪkahˌciʔ, ˌˈtɪʙooˈʔa, ˌˈtɪʙooˌpha, ˌˈtɪhkaˌʔa, ˌˈnakarɪ̆ˌʔa, ˌˈtɪasɪ, ˌˈparɪnooˌʔa, ˌˈpuniʔ *As I come into the room I see the pencil, the paper, the table, the chair, and the pen.* In sentence (21) of the text[4a] (6.1) there is some variation in timing due to the disparity of number of syllables in the units, but there is a tendency toward perceptual equalization wherever possible.

This perceptual regularity of rhythm unit timing is accomplished by several devices including pause (as in the example of the paragraph above) and the non-phonemic lengthening of a consonant to keep a phonemically short vowel relatively so and yet preserve the perceptual length of rhythm unit time.[7] ˌˈpiaroˌsanɪˌtˌ[·]ɪ nɪˌˈkahnica? ˌˈkuhcu? ˌma?ɪ *My big white house burned down.* ˌˈnɪ̄ˌmanoˌwɪmɪ̆ˌnaˌtˌ[·]ɪ̄ ˌˈteˌnaˌnɪ̄ *nine men.* In sentence (9) of the text there occurs the example ˌˈtɪmaˌrɪˌm[·]uakuˌʙai *lots of water*; in sentence (18): ˌsuniˌˈnah[·]ˌkatɪ̆ *staying as he was.* In cases of irregularity of number of syllables in the rhythm group there may occasionally be no timing compensation, and irregular timing may occur. See text (20): ʔuˌˈtɪrɪeʔˌtɪhˌciʔˌnɪ̄ *his dear little children*, where there is no adequate compensation for the disparity between the

[4a] Section 6, Illustrative text will appear in a later issue of IJAL.

(104) [7] In the otherwise phonemic transcriptions of data in this paragraph the non-phonemic length is enclosed in brackets [·]. In the first example the consonant length is necessitated by the fact that voiceless vowels occur shorter than voiced vowels.

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194 number of syllables in the respective rhythm units.

Rhythmic structural contrasts exist within utterances and between utterances, and the rhythm pattern of a given morpheme or sequence of morphemes is not always the same. In the following examples the sequence of morphemes ˈnɪ-mī-kuhcu? *buffalo* occurs with different rhythm patterns. ˌˈnīmīˌkuh-cu?a ˌˈkumaˌīlˌca? ˌˈpiaˌʁihīˌkʷahˌtītu ˌˈtooˌ-yīkaˌrīī *The buffalo bulls are grazing out on the prairie.* ˌˈsooˌtīlˌca? ˌˈpueˌkʷaci?ˌnīmīˌ-kuhcu? ˌnīmīˌˈpiaˌʁihīˌkʷahˌtītu ˌˈtooˌyīkaˌ-rīī *Those wild buffalo are grazing out on the prairie.* Compare also the morpheme ˈ?ahpī? *father* in text sentences (17) and (20), ˈtīasī *also* in (4) and (8), ˈmekɪ *said* in (2) and (6), ˈsurīkse? in (4) and (8).

Rhythm stress generally coincides with lexical stress where it occurs (see 2), but in some utterances lexical stress may be suppressed by rhythm. In such a case the high pitch feature of lexical stress is left to [104] mark the point of its placement (see 4). In the following examples wherever rhythm stress does not coincide with lexical stress /ˌˈ/, but lexical stress occurs without rhythm /ˈ/, the lexical stress should be read with high pitch but no stress. nīˌˈrua ˈrīˌtaatɪ̄ ˌˈyuupɪ̄ˌca? nɪˌˈnīasīˌmapɪ̄ru ˌˈnɪ-miitɪ̄ *My fat little son is in the yard.* ˌˈsurīkˌse? ˌˈsuʔaˌna ˈʔuˌrīkɪ̄ ˌˈʁihˌtin *He took it out of the water.* Other examples may be found in text sentences (6), (11), (12), (14), (15), (19), and (20).

The rhythm units between pauses (/ˌ/ or /./[a]) comprise a rhythm group. There are more likely to be differences of timing between rhythm groups than between rhythm units of the same group. In text sentence (1), for example, the rhythm group ˌˈpekʷi ˌnɪˌ-ˈtɪrɪˌeʔˌtlɪˌmaˌʔai *a fish with his children* occurs with even timing but different timing from the rhythm groups preceding or following. There is also a marked change of timing between the final rhythm group and those

[a] See 4.

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194 preceding it in (15). So far as has been ascertained at present, such differences are fluctuant and not meaningful.

194 The only association between rhythm and meaning differences so far detected is in
196 situations demanding attention ('attentative') as in imperative constructions and the drawing of exaggerated attention to words or specific parts of utterances. This rhythm pattern consists of a deliberate, slow rhythm with few syllables to the rhythm unit and marked extra lengthening. It may optionally correlate with emphatic stress. In the following illustrations attentative rhythm (symbolized /‖/ for each rhythm unit with which it occurs) should be read with each modified syllable long, and such rhythm units containing vowel clusters with exaggerated length. ‖ˈʔorii ‖ˈnīmī‖kuh‖cuʔ‖nii ‖ˈpuuni *Look at those buffalo!* ‖ˈpia‖rīksī‖-kīpĭ ‖ˈkima ‖ˈʔinU‖ni‖tU *Beefsteak,* (nickname of a person) *come here!* Text examples may be found in sentences (5), (7), (8).

[104]

194 2. The contrastive placing of lexical stress may be seen in the following words: ˈtosahwI *silver,* waˈsape *bear,* mahtoˈkoo *thumb,* kuyuˈ-niʔnīĭ *turkeys,* nīmīˈkuhcuʔ *our* (pl.) *cow,* ˈnīmīkuhcuʔ *buffalo.*

Emphatic stress, which occurs occasionally for affective purposes, always coincides in point of placement with lexical stress. (See text sentences (9), (13), (14), (18).) Emphatic stress is used to give extra intensity to a situation, and not as in English to emphasize one word as against another. It may occur on a single point of lexical stress or at several such points in sequence. The distribution of lexical stress is most prevalent on one of the first three syllables of a word[9] and most often on the first syllable of a root or compound.

3. Interpretation of vowel length. Contrastive length of vowel may be seen in

[104]

[9] The word is defined by implication as an intra-potential in Formulae pp. 98, 99. It is written bounded by space.

194 such pairs as ˈʔurĭ *that one* vs. ˈʔurĭĭ *those*, ˈtɬhkati *the one eating* (obj.) vs. ˈtɬhkatii *the ones eating* (obj.), ˈsookonai *lots of water* (obj.) vs. ˈsokona *on the ground*, ˈmeeku *now* vs. ˈmekĭ *said*. These phonetically contrastive vowel lengths are interpreted phonemically as a sequence of two identical vowels by analogy to other VV sequences as ˈmĭa *moon*, ˈpĭeckU *tomorrow*, ˈpiapĭ *big*, ˈʔihpĭi *sleep*, ˈtua? *son*, ˈtuinihpĭ? *boy*, and ˈtĭrĭcʔtĭĭ *children*.[10]

Single vowels or sequences of identical vowels maintain their relative contrast except under conditions of morphemic alternation—but the relative amount of difference in length between the two is conditioned by rhythm and position in the utterance. Sequences of identical vowels before pause (either /./ or /,/, see 4) are generally extra long. Non-phonemic modification of length is conditioned by rhythm as follows. (1) Within the same rhythm group (but not before pause) a sequence of identical vowels is perceptibly longer than a single vowel, but not as long as if before pause. (2) A single vowel in a rhythm unit containing only one syllable with only one vowel will still contrast with a rhythm unit containing a sequence of vowels or two syllables, even when the timing is maintained as approximately the same, by a non-phonemic compensatory lengthening of a following consonant or by slight pause if the short syllable comes at a point of optional pause (see 1). (3) When two parts of the utterance occur with rhythm groups which contain varying numbers of rhythm units, the relative contrast between single vowels and sequences of identical vowels applies only within the rhythm group be-

[128] [10] We cannot here decide the question as to whether or not such sequences constitute two syllables or one. For purposes of description here they are assumed to be one. So far as prosodic evidence is concerned, the evidence of pitch level would lend weight to interpretation as single syllables, whereas rhythm stress may occasionally occur on the second member of such a cluster as in ˌˈtĭrĭˌeʔˌtĭĭ [6.1 (1), (2)].

[p. 300-A]

194 cause a vowel of one group may be non-phonemically longer than a sequence of another group. In text sentence (21), ˌ¹tĩhtĩˌtaayuˌtu²ˌiˌnĩĩ *ones who will be little* at least three perceptible phonetic vowel lengths occur. taa is phonemically long but phonetically shorter than nĩĩ because the latter occurs alone in a rhythm group and the former does not. taa is shown to be phonemically long by its contrast with several short vowels in the same rhythm group.

4. The importance of rhythm (as limited as its affective meanings seem to be) is accentuated by the complete conditioning of pitch contours. In Comanche all utterances occur with the same relative intonational pitch contour. That contour may be described roughly as high pitch on lexically stressed syllables and regular pitch elsewhere, but there are other modifying factors which must be described.

194 104 Three basic phonetic pitch differences have been distinguished on voiced vowels:[11] pitch level[1] (high) occurs on lexically stressed syllables, sometimes with a slight drop on the end of a VV sequence. The height of pitch is correlative with the contrast between lexical and emphatic stress, extra height being sometimes associated with emphatic stress. Pitch level[2] (mid) occurs elsewhere except for optional[3] (low) before /./.

Variations of these pitches are: [1] > [1a] (high-falling glide) on stressed syllables which contain an identical VV cluster if the syllable is the last voiced syllable of the word (i.e., if the following syllable contains no voiced segments). [2] > [2a] (slightly higher than [2]) optionally preceding lexical stress within a word. [3] > [3a] (mid falling

[11] The superscript numbers, assigned to pitch differences which have been heard, have no significance except that of labels for phonetic phenomena. Examples in this section will be transcribed phonemically except for the pitch symbol in brackets with each syllable.

194 [104] to low) optionally on unstressed syllables containing a VV sequence before /./. ˈʔa[1]ˈnaa[1a]. (exclamation); ʔo[2a]ˈnoo[1a]. (exclamation); ˌˈʔɪ[1]ˌʁia[2]ro[2]ˌko[2]ʔI. (exclamation); ˌˈʔɪ̄ɪ̄[1a], ˌˈsɪ[1]ma[2]nu?[2], ˌˈwa[1]-na[2]ˌwi[2]ˌwih[2]ˌta?[2], ˌˈsɪ[1]ma[2]ˌnai[2]ˌku[2] ˈna[1]ˌʁo[2]ri[2] ˌˈʔu[1]rɑ[2]ʔI *Oh, I found a dollar bill!*; ˌˈʔu[2]sɪ[2a] ˌˈha[1]kaa[2]rɪ[2] *Who's that?*; nɪ[2a]ˌˈha[1]kai[2], ˌˈyɪ̄[1a]kᵊI *What shall I say?*; ˌˈkee[1a] nɪ[2]ˌˈrɪ[1]ʁoo?[2]ˌma?[2] *No, that's my pencil!*

194 128 A check of texts, both narrative and conversational, made on tape recording, and observation of Comanche speech in other situations than informant ones, revealed that this one pattern with its variants occurs on all utterances.

[104] The distinction made here between /ˌ/ anticipatory pause, and /./ non-anticipatory pause, is as follows. Non-anticipatory pause is a pause preceded or followed by a modification of pitch or rhythm. It may be preceded by a drop of intonation to [2] or [2a]. It may be preceded by a dropping of the general height of voice through the utterance and followed by a sudden raising of voice height at the beginning of the next utterance. It may be followed by a quickened tempo of rhythm in the beginning of the next rhythm group. Anticipatory pause, on the other hand, is a pause without any modification of the pitch or rhythm of preceding or following utterances.

194 [104] /./ may coincide with grammatical sentence units or may group several such grammatical units. In the text compare (1), (2), (3), etc., where the non-anticipatory pause coincides with grammatical units, and the latter parts of the text where fewer such pauses occur. /ˌ/ anticipatory pause, may occur at any potential (symbolized here by space).

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5. Some of the prosodic features described above occur occasionally in gradient degrees of difference. The range between non-phonemic pitches may vary without structural contrast under situations of extra stimulus.[12]

The total contour of an utterance or part of an utterance may be raised gradiently, especially in quotation situations, so that the quotation is optionally spoken on a higher pitch. This is true of text examples (2) and (7) but not of others which contain quoted materials. When the gradient raising occurs, the same relative contours, conditioned by stresses, vowel clusters and pause, are maintained, but all are gradiently higher.

Rhythm units may likewise be slowed or extended gradiently from normal speech to that of sleepy or tired situations. The non-structured variation lacks the intensity and precision of attentative rhythm types.

[12] Gradient differences of pitch in English or Comanche as opposed to the structured contrastive levels of English, are more directly associated with the physiological conditioning of which Bolinger speaks (see fn. 5). Physiological tension may vary the range between English phonemic pitch levels, as it may vary the range between the levels of languages with phonemic lexical tone, but so long as there is a point in any speech context beyond which the meaning changes, the levels are arbitrarily contrastive and not physiologically conditioned. Pike points out to me that the contrast between John, John, John, (with tone 4-3, 4-2, 4-1 respectively), may be maintained in normal voice, falsetto, or laryngealised speech ('low voice') and that the range may be small or great, but WITHIN ANY SPEECH STYLE THE CONTRAST IS PRESENT AND ARBITRARY, not 'instinctive' or 'physiologically' determined. The contrast is a conventionally structured one even though high pitch may be associated with emotional tension.

[p. 301-B]